

Assignment 4

Assignment date	06 November 2022
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Question 1:

Pull an image from docker hub and run it on docker playground.

Solution 1:

```
docker pull uifd/ui-for-docker
```

```
docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
```

The screenshot shows a web browser window displaying the Docker Hub page for the repository `uifd/ui-for-docker`. The page header includes the Docker Hub logo, a search bar, and navigation links for Explore, Repositories, Organizations, and Help. The repository page itself features a blue cube icon, the repository name `uifd/ui-for-docker`, and a star icon. Below the name, it states "By uifd • Updated 6 years ago" and "A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features." There is a "Pulls 10M+" badge. The page has tabs for "Overview" and "Tags". The "Overview" tab is active, showing a message: "This repo is deprecated. Development continues at: [portainer/portainer](#)". There are links for "chat" and "on github". A "Goals" section mentions: "UI For Docker is a web interface for the Docker Remote API. The goal is to provide a pure client side implementation so it is effortless to connect and manage docker." On the right, a "Docker Pull Command" box displays the command: `docker pull uifd/ui-for-docker`. The browser's address bar shows `hub.docker.com/r/uifd/ui-for-docker/`. The Windows taskbar at the bottom shows various application icons and the system clock indicating 13:28 on 15-11-2022.

Docker playground:

The screenshot shows a Docker playground interface. On the left, there's a sidebar with a 'CLOSE SESSION' button, an 'Instances' section with a key icon and a gear icon, and a '+ ADD NEW INSTANCE' button. Below this, there's a list of instances: '192.168.0.8' and 'node1'. The main area displays the IP '192.168.0.8' and an 'OPEN PORT' button. Below this, there's a 'Memory' and 'CPU' section. The 'SSH' section shows the command 'ssh ip172-18-0-53-cdjth7m0qau000esrdp0@direct.labs.play'. There are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following commands and output:

```
[node1] (local) root@192.168.0.8 ~  
$ docker images  
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE  
uifd/ui-for-docker  latest         965940f98fa5   6 years ago    8.1MB  
[node1] (local) root@192.168.0.8 ~  
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker  
ab4812e7bf2cde4f33b05baac16b2857aedb359141ele8be944f7149b10c9a37  
[node1] (local) root@192.168.0.8 ~  
$
```

Docker UI:

The screenshot shows the Docker UI dashboard. At the top, there's a navigation bar with tabs: 'Dashboard', 'Containers', 'Containers Network', 'Images', 'Networks', 'Volumes', and 'Info'. A 'Refresh' button is on the right. The main content area is divided into two sections: 'Running Containers' and 'Status'. The 'Running Containers' section shows a list of containers: 'serene_keller' with a status of 'Up 17 seconds'. The 'Status' section features a donut chart showing the status of containers: 'Running' (green), 'Stopped' (red), and 'Ghost' (grey). Below the charts, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1 over time.

Question 2:

Create a docker file for the job portal app or hello world app and deploy it in docker desktop app.

Solution 2:

DockerFile

Dockerfile - Notepad

File Edit Format View Help

```
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

Bulid Docker image

```
C:\Windows\System32\cmd.exe
E:\Study materials\Sem 7\IDM\Exercise\Assignment4>docker build -t hello-world .
[*] Building 160.4s (10/10) FINISHED
-> [internal] load build definition from Dockerfile
-> transferring dockerfile: 194B
-> [internal] load .dockerignore
-> transferring context: 2B
-> [internal] load metadata for docker.io/library/python:3.8
[1/5] FROM docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5
-> resolve docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5
-> sha256:908972ffecdd8c17c25b21573681851f092e054f57cccd7eb43937a1a47114480 8.56kB / 8.56kB
-> sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB
-> sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 10.88MB / 10.88MB
-> sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5 1.86kB / 1.86kB
-> sha256:23a1010fcf737e709a912ce9ad7480801a01e0e35ff1c5e7d6b0b640b0e1c3f 2.22kB / 2.22kB
-> sha256:de4ad4c6cea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.15MB / 5.15MB
-> sha256:a7969cfffbf466a91291fd76b19ecbe93c03ea4dedd014042aecb4c4c4211a43 54.59MB / 54.59MB
-> sha256:74bf51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB
-> sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 234B / 234B
-> extracting sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 10.8s
-> sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397800b4637f72ce91b6 2.89MB / 2.89MB
-> extracting sha256:de4ad4c6cea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 1.3s
-> extracting sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 1.0s
-> extracting sha256:a7969cfffbf466a91291fd76b19ecbe93c03ea4dedd014042aecb4c4c4211a43 13.1s
-> extracting sha256:74bf51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 13.6s
-> extracting sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 0.4s
-> extracting sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4 1.1s
-> extracting sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 0.0s
-> extracting sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397800b4637f72ce91b6 0.4s
-> [internal] load build context
-> transferring context: 1.15kB
[2/5] WORKDIR /app
[3/5] ADD . /app
[4/5] COPY requirements.txt /app
[5/5] RUN python3 -m pip install -r requirements.txt
-> exporting to image
-> exporting layers
-> writing image sha256:f68fcdce5bb665f00e8f47bc4d137a4f7e0533348402c5bfda71121d7d43f63
-> naming to docker.io/library/hello-world 0.0s
```

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

Deploy it on Docker hub

Containers

Images

Volumes

Dev Environments BETA

Extensions BETA

Add Extensions

Images on disk

Last refresh: Never 1 images Refresh to see disk usage Clean up

Images [Give feedback](#)

LOCAL

REMOTE REPOSITORIES

☐ In use only

NAME ↑	TAG	IMAGE ID	CREATED	SIZE
hello-world	latest	f68fcdce5bb6	less than a minute ago	919.36 MB

RAM 3.66GB CPU 0.08% Connected to Hub

v4.13.1

Q

×

C:\Windows\System32\cmd.exe

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

hello-world latest f68fcdce5bb6 5 minutes ago 919MB

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker login

Authenticating with existing credentials...

Login Succeeded

Logging in with your password grants your terminal complete access to your account.

For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world

Using default tag: latest

The push refers to repository [docker.io/itsmona14/hello-world]

373eb5cf4ceb: Pushed

1e505dc1de5e: Pushed

090c85cb75c5: Pushed

ded8299b8f1a: Pushed

1fe0699af9f7: Mounted from library/python

156568a71809: Mounted from library/python

5fca8a94d542: Mounted from library/python

6b183c62e3d7: Mounted from library/python

882fd30bfd35: Mounted from library/python

d10dc9017839: Mounted from library/python

d38adf30e1dd: Mounted from library/python

4ed121b04368: Mounted from library/python

d9d07d703dd5: Mounted from library/python

latest: digest: sha256:46ff91edc98aaa5d7fff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>

Tested it using Docker playground

The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a 'CLOSE SESSION' button, an 'Instances' section with a wrench and gear icon, and a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.13 node1'. The main panel displays details for the selected instance: IP '192.168.0.13', 'OPEN PORT' button, '5000' port, 'Memory' usage '27.73% (1.083GiB / 3.906GiB)', 'CPU' usage '0.16%', and an 'SSH' command 'ssh ip172-18-0-40-cdi0ji60qau0008f9u80@direct.labs.play-v'. Below these are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following output:

```
1bd231713cc1: Full complete
59ebc78c27fb: Full complete
72f61f026f6a: Full complete
b8ba28eaa452: Full complete
Digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f
Status: Downloaded newer image for itsmona14/hello-world:latest
docker.io/itsmona14/hello-world:latest
[node1] (local) root@192.168.0.13 ~
$ docker run -p 5000:5000 itsmona14/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.18.0.1 - - [03/Nov/2022 19:24:35] "GET / HTTP/1.1" 200 -
```

Question 3:

Create an IBM container registry and deploy hello world app or job portal app.

Solution 3:

My image link: au.icr.io/hello-world-app/hello-world

The screenshot shows a Command Prompt window with the following commands and output:

```
C:\Users\Monashree>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
11.90 MiB / 11.90 MiB [=====] 100.00% 5s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Monashree\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry'
to show its details.

C:\Users\Monashree>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> 2019115055@smartinternz.com

Password>
Authenticating...
OK
Targeted account Monashree K's Account (302198646cc145ea8bc880cfb0a0d15d)

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
882fd36bfd35: Pushing [=====] 110.5MB/529MB
d1dec9917839: Pushing [=====] 79.9MB/152MB

API endpoint: https://cloud.ibm.com
d9d07d703dd5: Pushing [=====] 67.45MB/124.1MB
d1dec9917839: Pushing [=====] 69.67MB/152MB
```

```

C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc069: Pushed
806e0928fc5e: Pushed
4bb28ce8724f: Pushed
402de03c8533: Pushed
f5d161bbe139: Pushed
1569e0d95ca6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882fd36bfd35: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38adf39e1dd: Mounted from hello-world-app/hello-world-app
4ed121b04368: Mounted from hello-world-app/hello-world-app
d9d07d703dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag      Digest          Namespace      Created      Size      Security status
au.icr.io/hello-world-app/hello-world  latest  0036fe145662    hello-world-app  12 minutes ago  350 MB    -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -

```

Container Registry

Quick start

Namespaces

Repositories

Images

Trash

Settings

Repositories

Location

Sydney

Create

<input type="checkbox"/>	Name	Image count	Namespace	Last updated	
<input type="checkbox"/>	<div>hello-world</div> <div>au.icr.io/hello-world-app/hello-world</div>	1	hello-world-app	15 minutes ago	

Items per page: 25
1-1 of 1 item

1
1 of 1 page

Question 4:

Create a kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport.

Solution 4:

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```
apiVersion: v1
kind: Service
metadata:
  name: hello-world-deployment
spec:
  ports:
    - port: 5000
      targetPort: 5000
  selector:
    app: hello-world
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: hello-world-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: hello-world
  template:
    metadata:
      labels:
        app: hello-world
    spec:
      containers:
        - name: hello-world
          image: au.icr.io/hello-world-app/hello-world
          imagePullPolicy: Always
          ports:
            - containerPort: 5000
```

The screenshot displays the IBM Cloud Kubernetes Dashboard for a cluster named 'mycluster-free'. The cluster is in a 'Normal' state and is scheduled to expire in 29 days. The dashboard provides a detailed overview of the cluster's components and configuration.

Node status	Add-on status	Master status	Ingress status
1 of 1 Normal	0 of 0 Normal	Normal	Unknown

Details

Cluster ID	Version	Infrastructure	Zones
cd1c30c50a60nchav5k1g	1.24.7_1542	Cloudic	Milan 01

Created 04/11/2022, 01:12

Resource group Default

Image security enforcement [Enable](#)

